## FTS and Heterodyne Observations of Jupiter From the Caltech Submm Observatory During the S1 .-9 Impact I'cried

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We will use a new submm Fourier Transform Spectrometer and a suite of heterodyne/AOS receivers at the Caltech Submm Observatory on Mauna Kea, HI to observe Jupiter before, during, and after the major fragments of comet Shoemaker-I .evy 9 impact the planet. Weather permitting, the FTS can cover a range from 150101000 (;117J (2.() to 0.3 mm) in five scans, with 160 Ml Iz resolution. 1 Ieterodyne/AOS observations, with a choice of 500" Ml Iz bandwidth at ().5 MHz resolution or 50 MHz bandwidth at 0.05 MHz resolution, will augment the 1 'TS observations. The FTS' wide bandwidth allows a search for spectral features arising from constituents in Jupiter's troposphere as well as strong features in the stratosphere, giving equal weights to expected and unexpected features over the entire frequency range. High resolution heterodyne observations of spectral lines detected by the FTS refine the line profiles. Subsequent analyses yield altitude distributions from pressure broadening, longitudinal distributions from Doppler shifts and timing, and abundances from line depths. The impacts are expected to enrich the stratospheric abundances of certain species such as CO and 1 ICN, so lines associated with those spc.tics are targeted for heterodyne observations independent of FTS detections. observations were made at {hose line frequencies during June 1994 and will be made again on July 15, 1994 to establish pre-impact baselines. Observations will be made cacb night from July 15 through July 24, 1994. This work is supported by NSF Grant AS'1'93 13929.